

New taxa of *Gentiana* (Gentianaceae) from Western China and the Himalayan region

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SYNOPSIS. Eleven new species* and two new varieties from Western China and the Himalayan region are described. They are *G. leucantha* H. Smith, *G. chateri* T. N. Ho, *G. hicksii* H. Smith, *G. masonii* T. N. Ho, *G. zekuensis* T. N. Ho et S. W. Liu, *G. laxiflora* T. N. Ho, *G. depressa* var. *stenophylla* T. N. Ho, *G. bryophylla* H. Smith, *G. micans* var. *latifolia* T. N. Ho, *G. glabriuscula* H. Smith, *G. winchuanensis* T. N. Ho, *G. shaanxiensis* T. N. Ho and *G. subuliformis* S.W. Liu. The following three new names are also made: *G. himalayaensis* T. N. Ho, *G. alata* T. N. Ho and *G. taiwanica* T. N. Ho.

*Among them three species were diagnosed, described and typified and one species labelled by Harry Smith but were left unpublished at his death in 1971.

NEW TAXA

1. *Gentiana leucantha* H. Smith, **sp. nov.** (Sect. *Otophora* Kusn.)

Species *Gentiana decoratae* Diels et *Gentiana infelici* C. B. Clarke affinis, sed a prima tubo corollae lobis multo longiore (nec subaequilongus), a secunda flore duplo majore, ab ambo- bus flore albo (in sicco lutescenti) bene differt.

Planta perennis, omnino glabra, e collo radicem principalem carnosulam, fusiformem et caules floriferos numerosos edens. Caules floriferi perennes, assurgentes, breves, dense parvifoliati. Folia rosularia decunt, caulina sessilia, internodiis multo longiora, ovata, 3.5–4 mm longa, 1.8–2 mm lata, apice acuta, submucronata, margine cartilagineo-microscabridula. Flores solitarii, terminales, erecti, sessiles; tubus calycis campanulatus, 5–6 mm longus, lobis ellipticis, 3–3.5 mm longis, c. 2 mm latis, apice acuminatis, mucronatis; corolla alba (in sicco lutescens), calyce triplo vel ultra longior, tubo subcylindrico, 13–15 mm longo, lobis ovatis, 4–5 mm longis, fere 4 mm latis, obtusis, plicae lobis lateraliter adnatae, c. 2.5 mm longae et 1.5 mm latae, bifidae, laciniatae vel fere integrae subtruncataeque; stamina tubo corollae c. 7 mm alte affixa, ex ore corollae exserta, filamentis filiformibus, 6–8 mm longis, antheris linearibus, vix 2 mm longis; ovarium ellipticum, 8–10 mm longum, apice in stylum c. 1 mm longum attenuatum, stipite c. 2 mm longo. Capsula inclusa, c. 11 mm longa; semina brunnea, oblonga, 1.1 × 0.4 mm magna, tenuiter reiculata.

China: S Tibet: Tsari, Karkyn la, on open grassy hillside, 4420 m, 24 June 1936, *Ludlow & Sherriff* 2209 (BM); *ibid.* on mossy open hillside, 4000–4270 m, 11 October 1938, *Ludlow, Sherriff & Taylor* 6592 (BM); Chayul chu, Kashong la, 4420 m, 14 July 1936, *Ludlow & Sherriff* 2356 (BM); SE Tibet: Langgong, 28°45' N 94°E, on open grassy hillside, 4420 m, 5 June 1938, *Ludlow, Sherriff & Taylor* 3963 (BM, E); Kongbo, Kushi la near Paka, 29°15' N 94°2' E, 4270–4570 m, 25 July 1938, *Ludlow, Sherriff & Taylor* 5934 (BM–holotype); *ibid.* on open grassy meadows, 4270 m, 27 July 1938, *Ludlow, Sherriff & Taylor* 5951 (BM, E); *ibid.* Deyang la, on stony grassy slopes, 4115 m, 8 August 1947,

Ludlow, Sherriff & Elliot 14273 (BM, E). **NE Bhutan:** Me la, 4420 m, 5 August 1933 *Ludlow & Sherriff* 415 (BM); *ibid.* 4270 m, 26 August 1949, *Ludlow, Sherriff & Hicks* 21104 (BM, E, K); Ju la, Mangde chu, 19 July 1949, *Ludlow, Sherriff & Hicks* 16886 (BM, E).

2. *Gentiana chateri* T. N. Ho, **sp. nov.** (Sect. *Otophora* Kusn.)

Species ob folia rosularia linearia et corollam albam usque flavescemtem *Gentiana damyonensi* Marquand et *Gentiana hicksii* H. Smith similis, sed a prima corolla epunctata, lobis tubo brevioribus, foliis caulinis ovato-lanceolatis, a secunda corolla minore, 18–20 mm longa, ab ambo- bus floribus 3–4 in cymam laxam dispositis, lobis calycis irregularibus, oblanceolatis et spatulatis, basi contractis recedit.

Herba perennis, 3–4 cm alta, e collo radicem principalem, caules floriferos et rosulem basalem emittens. Radix carnosula, verticalis, fusiformis, 4–6 mm diam. Caules floriferi 1–4, ascendenti-erecti, glabri. Folia rosularia linearia vel lineari-oblonga, 8–22 mm longa et 2–4 mm lata, apice acuta vel obtusa, basi attenuata, nervis 1–3, subtus prominentibus, petiolis c. 2 mm longis; illa caulina 2–3-juga, remota, ovato-lanceolata, 7–18 mm longa et 3–7 mm lata, apice acuta, basi breviter petiolata. Flores saepe 3–4 in cymam laxam dispositi, raro solitarii; pedicelli 4–5 mm longi; calyx 7–9 mm longus, tubo tubuloso, lobis irregularibus, obovatis et lineari-spathulatis, 3–4 mm longis et 0.5–1.5 mm latis, apice acutis vel obtusis, basi contractis; corolla alba (flavescens in sicco), atrocaeruleo-striata, tubulosa, 18–20 mm longa, lobis tubo brevioribus, oblongis, 6–7 mm longis, acutis, plicae obliquae, auriculatae, lobis lateraliter adnatae; stamina tubo corollae inferioris inserta, filamentis subulatis, c. 10 mm longis, ad basin breviter ampliatis, antheris luteis, c. 1 mm longis; ovarium lineare, c. 15 mm longum, stylo c. 5 mm longo, stigmatibus linearibus, recurvatis.

Nepal: Iswa Khola, 4000 m, 8 August 1971, *L. W. Beer, C. R. Lancaster & D. Morris* 9545 (BM), Kasuwa khola, 4000 m, 23 August 1975, *L. W. Beer* 25363 (BM–holotype).

We take particular pleasure in naming this species after Mr

Arthur O. Chater, former curator of the flowering plant herbarium, The Natural History Museum, who worked for some years on the Nepalese Flora.

3. *Gentiana hicksii* H. Smith, **sp. nov.** (Sect. *Otophora* Kusn.)

Species *Gentiana damyonensi* Marquand affinis, sed corolla majore, 25–35 mm longa, tubo lobis longiore (nec brevior) differt.

Herba perennis, c. 8 cm alta, e collo radicem principalem, caules floriferos et rosulam basalem emittens. Radix carnosula, verticalis, fusiformis, 3–5 mm diam. Caules floriferi 1–3, ascendenti-erecti, glabri. Folia rosularia linearia vel lanceolato-linearia, 3–4 mm longa et 2–3.5 mm lata; illa caulina 3–4-juga, internodiis breviora vel interdum subaequilonga, lanceolato-linearia, 0.7–1.2 cm longa, acuta, sessilia. Flores saepe solitarii, terminales; calyx 7–9 mm longus, tubo obconico, lobis subregularibus, linearibus; corolla alba, coerulesco-striata, cylindrico-obconica, 25–35 mm longa, tubo c. 19 mm longo, lobis ovatis, 8–9 mm longis et 5 mm latis, obtusis, plicae dentiformes, latere lobi adnata; stamina tubo c. 6 mm alte affixa, filamentis 13–15 mm longis, antheris angustis, vix 2 mm longis; ovarium lanceolatum, c. 15 mm longum, apice in stylum c. 4 mm longum attenuatum, stipite 2–3 mm longo. Capsula et semina non visa.

Bhutan: Pang la, on open wet slopes, 4000 m, 21 September 1949, *Ludlow, Sherriff & Hicks* 21456 (BM – holotype; UPS – isotype).

4. *Gentiana masonii* T. N. Ho, **sp. nov.** (Sect. *Otophora* Kusn.) Fig. 1.

Species *Gentiana otophorae* Franchet ex Forbes & Hemsley affinis, sed corolla omnino caerulea, epunctata bene differt.

Herba perennis, omnino glabra, 14–18 cm alta, e collo radicem principalem, caules floriferos et rosulam basalem emittens. Radix carnosula, cylindrica, 4–7 mm diam. Caules floriferi 1–3, ascendenti erecti. Folia rosularia oblongo-spathulata vel oblonga, 3–7.5 cm longa et 0.9–1.9 cm lata, apice acuta vel obtusa, basic in petiolos 2.5–6 cm longos attenuata, nervis 3–5, subtus prominentibus, illa caulina 2–3-juga, remota, oblonga vel ovato-elliptica, 1.4–2.6 cm longa et 0.7–1.2 cm lata, apice obtusa vel acuta, basi in petiolos 3–7 mm longos attenuata. Flores 3–4 in cymam laxam dispositi; calyx 6–8 mm longus, lobis irregularibus, spathulatis, 1.5–2.5 mm longis apice rotundatis vel acutis, basi contractis; corolla caerulea, epunctata, cylindrica, 16–20 mm longa, lobis tubo longioribus, oblongis, 13–16 mm longis et c. 5 mm latis, apice acutis, plicae minimae, c. 1 mm longae, auriculatae, lobis lateraliter adnatae; stamina medio corollae inserta, filamentis subulatis, c. 10 mm longis, antheris caeruleis, c. 1.5 mm longis; ovarium cylindricum, 11–13 mm longum, breviter stipitatum, stylo breve, stigmate breve.

Upper Burma: N'Maikha-Salwin divide, 26°28' N 98°48' E, September 1924, *Forrest* 24944 (K); ibid. 26°50' N 98°48' E, on alpine meadows, 4270 m, September 1925, *Forrest* 27222 (BM – holotype; K – isotype).

This new species is dedicated to my friend, Prof. Howard S. Mason, a member of American Rock Garden Society. He has been devoting himself to cultivated Gentians of different Gentian seedlings.

5. *Gentiana zekuensis* T. N. Ho & S. W. Liu, **sp. nov.** (Sect. *Cruciata* Gaudin) Fig. 2.

Species habitu *Gentiana officinali* H. Smith valde similis, sed tubo calycis obtuso (nec truncato), lobis filiformibus, usque ad 5 mm longis (nec dentiformibus, 1–1.5 mm longis), corolla flavida, caeruleo-punctata, versus limbum caerulea, raro corolla omnino caerulea (nec omnino flavida) differt.

Herba perennis, 15–40 cm alta. Radices subcarnosae, paucae, in radicem verticalem, cylindricam conniventes. Caules floriferi 3–10, ascendentes, caudice reliquis petiolorum brunis, fibrosis obtecto. Folia rosularia anguste elliptica vel lineari-lanceolata, 8–22.5 cm longa et 0.5–2.5 cm lata, apice acuta, basi attenuata, utrinque glabra, nervis 3–5, subtus prominentibus; illa caulina 2–3-juga, elliptica vel lanceolata, 1.8–5.5 cm longa et 0.6–1.2 cm lata, apice acuta, basi in vaginam 0.8–3 cm longam connata, eis summis bractescentibus, lanceolatis usque lineari-lanceolatis, 1.2–5 cm longis et 0.5–1 cm latis, acuminatis. Flores sessiles, numerosi, terminales axillaresque; calyx fissus fere ad basin, 6–13 mm longus, tubo spathaceo, apice obtuso, lobis filiformibus, usque 5 mm longis; corolla flavida, caeruleo-punctata, versus limbum caerulea, raro corolla omnino caerulea, tubulosa, 18–20 mm longa, lobis ovatis, 2.5–3 mm longis, acutis, plicae obliquo-triangularae, c. 1 mm longae, acuminatae; stamina tubo corollae inferioris inserta, filamentis linearibus, 7–8 mm longis, antheris flavidis, linearibus, c. 1.5 mm longis; ovarium lanceolatum, 11–13 mm longum, stylo cum stigmatibus c. 2 mm longo.

The corollas of *G. zekuensis* are yellowish, bluish towards the limb, seldom whole corolla bluish. *G. zekuensis* is somewhat intermediate between *G. macrophylla* and *G. officinalis* but closer to the latter. It differs from both mainly by the distinct and filiform calyx lobes.

China: Qinghai. Zeku, among shrubs, 3600 m, 24 July 1967, *Y. C. Young* 1822 (HNWP); ibid. on grassy hillside, 3200 m, 27 August 1970, *L. H. Zhou & L. N. Sun* 1958 (HNWP – holotype); ibid. among shrubs, 3300 m, 14 August 1975, *Z. B. Wang* 349 (HNWP); Tongren among shrubs, 3400 m, 26 July 1970, *S. W. Liu* 1474 (HNWP).

6. *Gentiana laxiflora* T. N. Ho, **sp. nov.** (Sect. *Frigida* Kusn.) Species *G. trichotomae* Kusn. et *G. erecto-sepalo* T. N. Ho affinis, ab hac corolla 22–25 mm longa, lobis calycis angustis, linearibus et subulatis, sinibus inter lobos calycis rotundatis, ab illa corolla caerulea, versus basin flavescens differt.

Herba perennis, 10–14 cm alta. Rhizoma breve, horizontale vel verticale, radices adventitias, caules floriferos et rosulam basalem emittens. Caules 1–3, erecti, subglabri, basi vaginis veteribus membranaceis obtecti. Folia plerumque basilaria, petiolata, laminae lineari-oblongae, 2.5–8 cm longae et 3–6 mm latae, apice acutae vel obtusae, basi attenuatae; illa caulina 1–2 juga, minor, sessilia. Flores 5–7, terminales et axillares, in florescentiam laxam dispositi; pedicelli graciles, 5–21 mm longi; calyx tubulosus, 8–11 mm longus, lobis angustis, linearibus et subulatis, 3–6 mm longis, sinibus inter lobos calycis rotundatis; corolla caerulea, versus basin flavescens, infundibuliformis, 2–25 mm longa, lobis ovatis, 1.5–3 mm longis, acutis, plicae truncatae, lobis brevioribus; stamina tubo corollae inferioris inserta, filamentis subulatis, c. 10 mm longis, antheris luteis, c. 2 mm longi. Capsula breviter

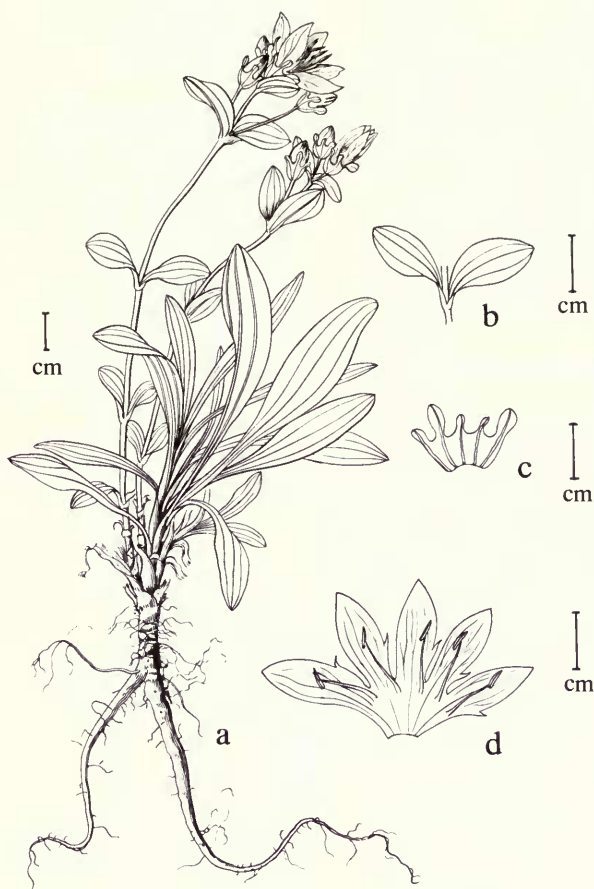


Fig. 1 *Gentiana masonii* T. N. Ho: a, habit ; b, cauline leaves ; c, calyx opened out; d, corolla opened showing stamens.

stipitata, ex corolla paullo exserta.

China. SE Tibet. Nam la, 29°59' N 94°17' E, 4115 m, 30 August 1938, Ludlow, Sherriff & Taylor 6944 (BM), Kongbo, 30°N 94°20' E, 4115 m, 20 July 1947, Ludlow, Sherriff & Elliot 15492 (BM – holotype; E – isotype).

7. *Gentiana himalayaensis* T. N. Ho, **stat. et nom. nov.**

Gentiana nubigena var. *parviflora* C. B. Clarke in Hook. f., *Fl. Brit. India* 4: 117 (1883). Type: Sikkim, Kinchinjhow, 4880–5200 m, J. D. Hooker (K – holotype!; BM – isotype!)

Gentiana algida var. *parviflora* (C. B. Clarke) Kusn. in *Acta Horti Petrop.* 15: 266 (1898).

DISTRIBUTION. C. & E. Himalayan region. China (S. & SE Tibet), Nepal, Sikkim, Bhutan.

8. *Gentiana depressa* D. Don var. *stenophylla* T. N. Ho, **var. nov.** (Sect. *Isomeria* Kusn.)

A var. typo recedit foliis angustis, lineari-oblongis vel lanceolatis, 1–3.5 cm longis et 2.5–4(–8) mm latis, acuminatis.

Leaves linear-oblong or lanceolate; calyx-lobes narrowly triangular or linear-elliptical.

Nepal: East of Chalike Pahar, 4000 m, *Stainton, Sykes & Williams* 4593 (BM); Moktintan, on grassy slopes near Pass,

4000 m, 1 October 1954, *Stainton, Sykes & Williams* 8060 (BM); Phagune Dhuri, 4000 m, 13 October 1954, *Stainton, Sykes & Williams* 9007 (BM); Kali Gandaki, Tasang/ESE of Tukche, 3840 m, 4 November 1976, *G. Miehe* 194 (BM); S. side Deorali ridge, 2900 m, 11 November 1979, *A. D. Schilling* 2445 (BM – holotype).

9. *Gentiana alata* T. N. Ho, **nom. nov.**

Gentiana kusnezowii Franchet in *Bull. Soc. bot. Fr.* 43: 492 (Nov. 1896), non Gilg May 1896 (in Engler, *Bot. Jahrb.* 22: 325). Type: China, Yunnan, Yunnansen (Kunming), *Delavay* s.n. (P – holotype!).

DISTRIBUTION. China (C. Yunnan).

10. *Gentiana bryophylla* H. Smith, **sp. nov.** (Sect. *Chondrophylla* Bunge)

Species habitu, forma folii et colore magnitudineque floris *Gentiana burmensis* Marquand persimilis, sed plicis corollae margine crenulatis, efimbriatis valde differt.

Herba perennis, c. 5 cm alta, stolone breve praedita. Caulis ascendens vel erectus, uniflorus, subglaber. Folia basilaria minuta, 2–3 mm longa, 1–1.5 mm lata; illa caulina 6–7-juga, inferiora minora, superiora ad 5 mm longa et 2 mm lata, lanceolata, recurvato-aristata, margine cartilaginea, subglabraque, versus basin gradatim dense ciliolata. Tubus calycis

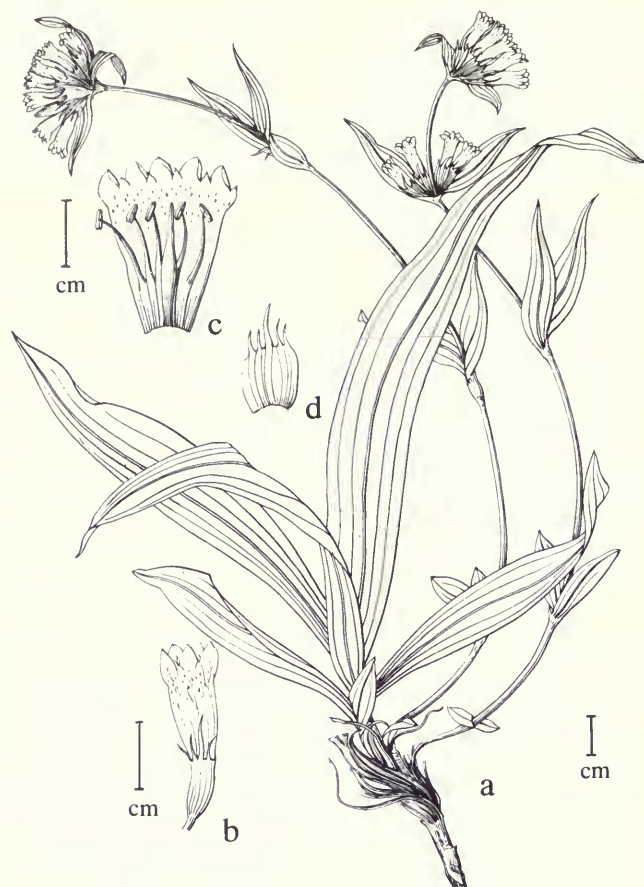


Fig. 2 *Gentiana zekuensis* S. W. Liu: a, habit; b, flower; c, calyx opened out; d, corolla opened inside with stamens and gynoecium.

6–7 mm longus, lobis 3.5 mm longis, acicularibus, subaristatis; corolla purpurea, c. 17 mm longa, tubo c. 15 mm longo, lobis paullo obliquis, rotundato-triangularibus, acutis, apiculatis, 2.5 mm longis et latis, plicae lobis paullo breviores, subrotundatae, margine crenulatae; stamina tubo corollae 6 mm alte adnata, filamentis filiformibus, 4.5 mm longis, antheris c. 1 mm longis; ovarium stipitatum, obovato-ellipsoideum, c. 5 mm longum, stylo fere 2 mm longo. Capsula amplanato-obovata, c. 5 mm longa, alata; semina brunnea, subangulariter ellipsoidea, 0.7×0.3 mm magna, reticulata.

Burma: Nam Tamai valley, $28^{\circ} \text{N } 97^{\circ}45' \text{E}$., on steep slopes in the mossy carpet underneath *Arundinaria* and *Rhododendron*, 3000 m, 8 September 1937, *Kingdon Ward* 13184 (BM – holotype); *ibid.* 9 September 1937, *Kingdon Ward* 13208 (BM).

11. *Gentiana micans* C. B. Clarke var. *latifolia* T. N. Ho, var. nov. (Sect. *Chondrophylla* Bunge)
Gentiana melaensis H. Smith in herb.

A var. typo recedit foliis caulinis latioribus, ovato-lanceolatis usque lineari-lanceolatis, patentibus (nec acicularibus, caule fere adpressis), lobis calycis brevioribus, latioribus, breviter acutis (nec longe acuminatis), plicis bifidis (nec integris minute laciniatis).

Bhutan: Liaru Thang, Ringchen chu, 3750 m, 8 June 1937, *Ludlow & Sherriff* 3531 (BM); Thampe la, on bare hillside, 4570 m, 14 August 1949, *Ludlow, Sherriff & Hicks* 17134 (BM), Shingbe (Me la), 4115 m, 8 September 1949, *Ludlow, Sherriff & Hicks* 21166 (BM – holotype; UPS – isotype).

12. *Gentiana glabriuscula* H. Smith ex T. N. Ho, sp. nov. (Sect. *Chondrophylla* Bunge).

Species *Gentiana pedicellatae* (G. Don) Griseb. similis, sed planta omnino glabra, foliis basilaribus majoribus, involucriforibus, orbicularibus vel late oblongis, illis caulinis minoribus, ovatis valde differt.

Planta annua vel biennis, 2–5 cm alta, omnino glabra. Caulis gracilis, ascendens, e basi ramosus quasi caespitosus. Folia basilaria majora, involucriformia, orbicularia vel late oblonga, 9–26 mm longa, 7–15 mm lata, apice rotundata, mucronata, basi in petiolos 3–5 mm longos abrupte contracta, nervis 1–3, utrinque prominentibus; illa caulina minora, ovata, 3–5 mm longa et 2–3.5 mm lata, apice acuta mucronataque, basi leviter attenuata, subsessilia. Flores sessiles, solitarii ad apices ramulorum siti; calyx campanulatus, 3.5–5 mm longis, lobis ovatis, 2–3 mm longis et 1.5–2 mm latis, apice acutis mucronatisque, basi contractis, recurvatis; corolla caeruleo-grisea, extra atro-caerulea, fauce nigro-punctata, campanulata, 5–7 mm longa, calycem paullo superans, lobis ovatis, c. 2 mm longis, apice

acutis mucronatisque, plicae late ovatae, c. 1 mm longae, lobis breviores, acutae, integrae vel bilobatae; stamina medio corollae inserta, filamentis c. 1 mm longis; ovarium obovato-oblongum cum stipite c. 4 mm longum, stylo brevior, stigmatibus oblongis.

Bhutan: Trashi Yanasi chu, on mossy rocks and banks in mixed forest, 2590 m, 5 September 1949, *Ludlow, Sherriff & Hicks* 20608 (BM – holotype). **Sikkim:** Gangtok-Karponang road, *F. H. Lister* 9 (K). **China:** S Tibet: Monyul, 2 April 1936, *Ludlow & Sherriff* 1264 (BM).

13. *Gentiana taiwanica* T. N. Ho, stat. et nom. nov.

Gentiana scabrida var. *angusta* Masam. in *Trans. nat. Hist. Soc. Formos.* 29: 64 (1939). Type: China, Taiwan, Nanhutashan, Taihoku-syu, 15 July 1931, *Masamune & K. Mori* s.n. (herb. Taihoku Imperial Univ. Taiwan – holotype, not seen).

Gentiana angusta (Masam.) Liu et Kuo in *Bull. Exp. Forest Natn. Taiwan Univ.* 114: 176, pl. 4 (1974), non M. E. Jones 1908 (in *Contrib. Western. Bot.* 12: 52).

DISTRIBUTION. China (Taiwan).

14. *Gentiana winchuanensis* T. N. Ho, sp. nov. (Sect. Chondrophylla Bunge).

Species *Gentiana piasezkii* Maxim. capsula anguste oblonga, calyce carinato-alato affinis, sed foliis ovatis, lobis calycis triangularibus, multo brevioribus bene recedit.

Herba annua, 8–10 cm alta. Caulis ascendens, ramosus. Folia basilaria ignoti; illa caulina remota, internodiis breviora, ovata, 4–6 mm longa et 2–4 mm lata, apice acuta, basi in petiolos 2–3 mm longos abrupte contracta, margine cartilaginea ciliolataque, utrinque glabra. Flores subsessiles, solitarii ad apices ramulorum siti, calyx tubuloso-infundibuliformis, 13–17 mm longus, lobis triangularibus, 1.5–2 mm longis, basi c. 1 mm latis, acuminatis, margine cartilagineis, sinibus rotundatis; corolla caeruleo-purpurea, fauce flavida et nigro punctata, anguste infundibuliformis, 25–30 mm longa, lobis ovatis, 6–7 mm longis, apice acutis mucronatisque, plicae ovatae, lobis paullo breviores, denticulatae, stamina medio corollae inserta, filamentis filiformibus, c. 5 mm longis, antheris c. 1 mm longis. Capsula inclusa, fusiformis, c. 10 mm longa, alata, stipite c. 5 mm longo; semina brunnea, oblonga, c. 1 mm longa, tenuiter reticulata.

China: N Sichuan. Winchuan, 2400 m, in forest, 30 July 1975, *Sichuan Veget. Exped.* 8522 (HNWP – holotype).

15. *Gentiana shaanxiensis* T. N. Ho., sp. nov. (Sect. Chondrophylla Bunge).

Species habitu *Gentiana piasezkii* Maxim. similis, sed foliis caulinis linearibus lobis calycis linearibus, usque ad fauce corollae, lobis corollae acuminato-caudatis differt.

Herba annua, 7–12 cm alta. Caulis purpureus, ascendens, dense papillosus, e basi ramosissimus. Folia apice acuta vel acuminata, margine dense papillosa, utrinque glabra, costis subtus prominentibus; illa basilaria majora, anguste oblonga, 25–42 mm longa et 3.5–8 mm lata, sessilia vel subsessilia; illa caulina linearia, 9–22 mm longa et 1.5–3 mm lata, sessilia. Flores solitarii ad apices ramulorum siti; pedicelli 2–10 mm longi, dense purpureo-papilloso, calyx tubuloso-infundibuliformis, 20–27 mm longus, usque ad faucem corollae, tubo

carinato alato, lobis linearibus, 6–8 mm longis; corolla purpurea, hypocrateriformis, 25–35 mm longa, lobis anguste lanceolatis, 5–9 mm longis, basi 2–3 mm latis, apice acuminato-caudatis, plicae ovatae, 4–5 mm longae et c. 3 mm latae, acutae, denticulatae; stamina medio corollae inserta, filamentis filiformibus, 50–55 mm longis, antheris linearibus, c. 1 mm longis; ovarium ellipticum, 7–8 mm longum, stylo cum stigmatibus 4–5 mm longo. Capsula e corolla exserta, spatulato-oblonga, 9–11 mm longa, alata, stipite corollam aequante vel superante; semina brunnea, oblonga, 1–1.2 mm longa, tenuiter reticulata.

China: Shaanxi: Ningqiang, 11 July 1957, *Northwest Univ. Biol. Exped.* 57 (HNWP – holotype).

16. *Gentiana subuliformis* S. W. Liu, sp. nov. (Sect. Frigida Kusn.)

Species *Gentiana wilsonii* Marquand similis, sed foliis basilaribus latis, anguste ellipticis vel oblongis, corolla multo minore, 23–25 mm longa differt.

Herba perennis, 12–20 cm alta. Rhizoma breve, horizontale vel verticale, radices adventitias carnosulas, caules floriferos et rosulam basalem emittens. Caules floriferi erecti, basi c. 2 mm diam., vaginis veteribus membranaceis obtecti. Folia plerumque basilaria, petiolata, petiolis 0.5–2 cm longis, laminis anguste ellipticis vel oblongis, raro oblongo-spatulatis, 1.5–3.5 cm longis et 0.5–0.9 cm latis, obtusis vel subrotundatis, basi attenuatis, nervis 3, subtus prominentibus; illa caulina 1–2-juga, eis basilaribus similaria, 2–3.5 cm longa et ad 1.2 cm lata, sessilia vel breviter petiolata. Flores numerosi, terminales, aggregati in inflorescentiam subcapitata; calyx tubulosus, c. 10 mm longus, saepe fissus, lobis recurvatis vel patentibus, subulatis, 1–2 mm longis; corolla atrocaerulea, epunctata, tubulosa, 23–25 mm longa, lobis ovatis, 1.5–2 mm longis, obtusis, plicae lobis breviores, truncatae, integrae vel denticulatae; stamina tubo corollae inferioris inserta, filamentis subulatis, c. 9 mm longis, antheris luteis, linearibus, c. 1.5 mm longis; ovarium stipitatum, lineare, c. 20 mm longum, stylo breve, stigmatibus linearibus.

China: SE Tibet: Bai ma, on alpine meadows, 4800 m, 10 August 1973, *Northwest Inst. Biol. Tibet Exped.* 1367 (HNWP – holotype); Bamda-Zogong, 4000 m, 5 September 1977, *P. C. Kuo & W. Y. Wang* 23411 (HNWP).

ACKNOWLEDGEMENTS. We are particularly indebted to the directors and staff of the herbaria of The Natural History Museum, the Royal Botanical Gardens, Kew, and the Royal Botanical Garden at Edinburgh for permission to consult their collections, for facilities provided and for the loan of specimens. We must also thank Prof. Tang Yan-cheng, Mr A O Chater and Dr Mike Gilbert for useful discussions in the preparation of this publication.

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